

Faculty of Engineering

School of Minerals and Energy Resources Engineering

Undergraduate Course MCE 3540 QEMC Spn



Course Code:	MINE4250	Term:	T1, 2020	Level:	UG	Units/Credits	6 UOC
Course Name:							

Course Convenor:							
Contact Details:	School of Minerals and Energy Resources Engineering Old Main Building, Rm 159H	Email:	simit@unsw.edu.au s.saydam@unsw.edu.au				
		Phone:	+61 2 9385 4525				
Contact Times:	Tue 13-18 (w1-2,4-5,7-10, Newt 306) Tue 13-17 (w3,6) The course will generally use Computer Lab (OMB 48/49)						

Development of a pre-feasibility study for a metalliferous mining project. Activities include assessment of reserves, method selection, layout and optimisation of surface and underground operations, geotechnical design, ventilation design, project risk assessment, mine scheduling, equipment selection, cost estimation, economics/finance and sustainability. Usage of mine design and optimisation software packages.

Course completion requires submission of all assessment items; failure to submit all assessment items can result in the award of an Unsatisfactory Failure (UF) grade for the Course.

Students should have sufficient knowledge to apply the principles of resource geology, resource estimation, mine planning and design, surface and underground mining methods, minerals economics and equipment selection.

The aim of this course is to introduce students to the principles of mine feasibility studies for metalliferous mine deposit. In this course, students should be able to develop skills for optimal mine design, scheduling and preparation of a pre-feasibility study document.

It is intended that students will be able to:

- Develop high level of mine design knowledge taking into account:
  - Data analysis and interpretation
  - Mine optimisation utilising geometrical, geotechnical and economical design parameters
  - Mine layout
  - Scheduling
  - Development and production planning, equipment selection,
  - Geomechanics and Ventilation,
  - Economic evaluation,
  - Learn and apply mine design and optimisation software packages,





18 <sup>th</sup> Feb		<ul style="list-style-type: none"> <li>• Introduction to the Course (Video in Moodle)</li> <li>• Data Checking</li> <li>• Resource Modelling</li> <li>• Pit Optimisation</li> </ul>	<p>Introduction of the project</p> <p>Review of resource model and data manipulation.</p> <p>Pit optimisation and results analysis (ultimate pit limit, reserve estimation, pushback, and production schedule).</p>
25 <sup>th</sup> Feb		<ul style="list-style-type: none"> <li>• Pit Optimisation &amp; Design and Vulcan software training</li> </ul>	
3 <sup>rd</sup> Mar		<ul style="list-style-type: none"> <li>• UG Mine Design and Vulcan software training</li> <li>• Industry Workshop (TBC) – Pit Optimisation (Group Discussion and Q&amp;A with an industry expert)</li> </ul>	<p>Based on optimised pit model, estimate reserves and waste. Assess production rates and stripping ratios. Design progressive pits and haul roads. Ultimate pit design and waste dump design.</p> <p>Underground mining strategy, mining method selection, stope sizing, reserve estimation. Selection of mine access and development of mining layout.</p>
10 <sup>th</sup> Mar	Underground Design and Layout	<ul style="list-style-type: none"> <li>• Progress Interview 1 @ OMB G49 and OMB G48 (TBC)</li> </ul>	Progress Interview 1


24 <sup>th</sup> Mar	Mine Design	<ul style="list-style-type: none"> <li>• Underground design and layout</li> <li>• Potential Cadia Mine Visit Industry Workshop (TBC) – Underground Mine Design (Group Discussion and Q&amp;A with an industry expert)</li> </ul>	Work on the design and layout of open pit & underground design and Layout
31 <sup>st</sup> Mar	Mine Design & Geotech Design	<ul style="list-style-type: none"> <li>• Equipment selection for both open pit and underground mine (Fleet size, capacity, type, etc.).</li> <li>• Ventsim simulation, ground support design, etc.</li> </ul>	Finalising the design and layout of open pit & underground design and Layout
7 <sup>th</sup> Apr	Equipment Selection	<ul style="list-style-type: none"> <li>• Progress Interview 2: (7<sup>th</sup> May) @ OMB G49 and OMB G48 (TBC)</li> <li>• 240.44 109.88 reWñBT/F10 10.98 Tf1 0 0 1 293.</li> </ul>	

Other UNSW Key dates: <https://student.unsw.edu.au/new-calendar-dates>









The assessment criteria provide a framework for you to assess your own work before formally submitting major assignments to your course convenor. Your course convenor will be using this framework to assess your work and as a way to assess whether you have met the listed learning outcomes and the graduate attributes for your program. We ask that you don't use the assessment





